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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,451	07/07/2003	Toshimoto Nakagawa	07200/032001	7502

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EXAMINER

ARANCIBIA, MAUREEN GRAMAGLIA

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,451

Applicant(s)

NAKAGAWA ET AL.

Examiner

Maureen G. Arancibia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication 2001/0050096 to Costantini et al.

Costantini et al. teaches a wafer cleaning apparatus (Figure 1), comprising chamber 37, where processing fluid is supplied through filter 46; a gas/liquid separation block (separators 56 and 61), for separation of a processing solution component (Paragraphs 39-44); and a recovered processing solution supply block (condenser 7, receiver tank 22), for resupplying the separated component to the processing chamber.

The materials worked on by the claimed apparatus, i.e. a resist-coated substrate and resist stripping solution, do not carry patentable weight. See MPEP § 2115.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Costantini et al. in view of U.S. Patent 5,762,749 to Suzuki et al.

Costantini et al. teaches that the separated gas should be returned to condenser 7 to be re-liquefied. (Paragraph 30)

Costantini et al. does not teach that the separated gas should be supplied to a gas spout unit facing the substrate in the processing chamber.

Suzuki et al. teaches gas spout units 2 and 3 in a processing chamber 27 facing substrate 5.

It would have been obvious to one of ordinary skill in the art to supply some of the separated gas to a gas spout unit facing the substrate in the processing chamber, as taught by Suzuki et al. The motivation for doing so, as taught by Suzuki et al. (Column 7, Lines 4-6), would have been to blow off any liquid still on the substrate.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Costantini et al. in view of U.S. Patent 5,715,612 to Schwenkler.

The teachings of Costantini et al. were discussed above.

Costantini et al. does not teach an inert gas supply unit for supplying an inert gas to the processing chamber.

Schwenkler teaches inert gas supply unit 116. (Column 3, Lines 54-55; Column 7, Lines 14-20)

It would have been obvious to include an inert gas supply unit for supplying an inert gas to the processing chamber in the practice of Costantini et al. The motivation for doing so, as taught by Schwenkler (Column 3, Line 55), would have been to aid in carrying the processing fluid.

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Costantini et al. in view of Schwenkler as applied to Claim 4, and further in view of U.S. Patent 4,904,339 to Diehl et al.

The teachings of Costantini et al. and Schwenkler were discussed above in regards to Claim 4.

The combination of Costantini et al. and Schwenkler as applied to Claim 4 does not teach a plurality of processing chambers or a rinse chamber, or that all the chambers should be in communication with each other.

Diehl et al. teaches a plurality of processing chambers (27, 28) in communication with each other and a rinse chamber 31. (Figure 2; Column 3, Lines 12-23)

It would have been obvious to one of ordinary skill in the art in the practice of Costantini et al. and Schwenkler to include a plurality of processing chambers and a rinse chamber in communication with each other, as taught by Diehl et al. The motivation for including a plurality of processing chambers would have been to allow for the application of distinct processing solutions or conditions. The motivation for providing a rinse chamber would have been to remove any remaining processing solution on the substrate. The motivation for providing all of the chambers in communication with each other would have been to avoid unnecessary exposure of the substrate to the outside environment, thereby eliminating possible sources of contamination.

Costantini et al. teaches that the gas/liquid separation block should be connected to one of the processing chambers, as was discussed in regards to Claim 1. Any one of

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the processing chambers in the combination of Costantini et al., Schwenkler, and Diehl et al. would be at an earlier stage than the rinse chamber.

In regards to Claim 5, the combination of Costantini et al., Schwenkler, and Diehl et al. does not expressly teach that the inert gas supply unit should be connected to the rinse chamber.

Schwenkler teaches that the inert gas is useful in drying the rinse water from a substrate. (Column 4, Lines 35-65)

It would have been obvious to one of ordinary skill in the art to connect the inert gas supply unit to the rinse chamber. The motivation for doing so, as taught by Schwenkler (Column 4, Lines 35-65), would have been to allow the inert gas to assist in drying the substrate after the rinsing was complete.

In regards to Claim 6, the combination of Costantini et al., Schwenkler, and Diehl et al. does not expressly teach that the inert gas supply unit should be connected to the last of the processing chambers.

Nevertheless, it would have been obvious to one of ordinary skill in the art to connect the inert gas supply unit to the last of the processing chambers, rather than the rinse chamber. The motivation for doing so would have been to avoid contamination of the processing fluid by the rinse water.

The materials worked on by the claimed apparatus, i.e. water-based resist stripping solution vs. non-water-based, do not carry patentable weight. See MPEP § 2115.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,062,438 to Micheletti illustrates the flow of air through communicating processing chambers. (Figure 1)
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571) 272-1219. The examiner can normally be reached on core hours of 11-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Maureen G. Arancibia

